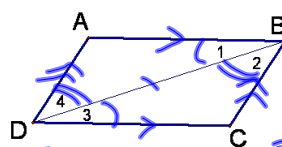
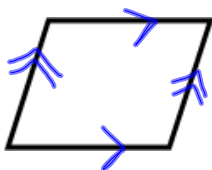


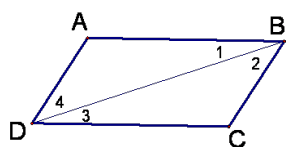
## 8-2 Parallelograms

Parallelogram-quadrilateral with both pairs of opposite sides parallel



Given:  $\square ABCD$   
 Prove:  $\overline{AB} \cong \overline{CD}$   
 $\overline{AD} \cong \overline{BC}$

S	R
① $\square ABCD$	① Given
② $\overline{AB} \parallel \overline{DC}$ $\overline{AD} \parallel \overline{BC}$	② def of $\square$
③ $\angle 1 \cong \angle 3$ $\angle 2 \cong \angle 4$	③ Alt. Int. $\angle$ s thm
④ $\overline{DB} \cong \overline{DB}$	④ Reflexive
⑤ $\triangle ABD \cong \triangle CDB$	⑤ ASA
⑥ $\overline{AB} \cong \overline{CD}$ $\overline{AD} \cong \overline{BC}$	⑥ CPCTC



Given:  $\square ABCD$   
 Prove:  $\angle A \cong \angle C$

Same 1-5 steps  
 ⑤  $\triangle ABD \cong \triangle CDB$  ⑤ ASA  
 ⑥  $\angle A \cong \angle C$  ⑥ CPCTC

Theorem 8.3-Opposite sides of a parallelogram are congruent



Theorem 8.4-Opposite angles of a parallelogram are congruent



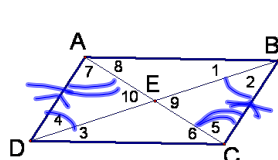
Theorem 8.5-Consecutive angles of a parallelogram are supplementary



$$m\angle A + m\angle B = 180$$

$$m\angle A + m\angle D = 180$$

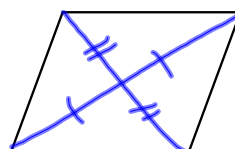
$$\text{etc...}$$

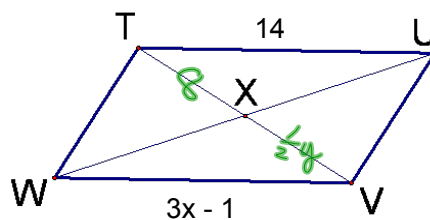
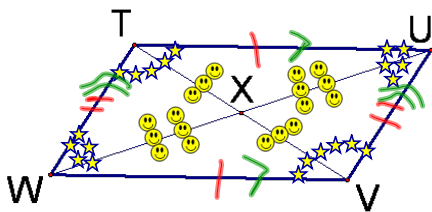


Given:  $\square ABCD$   
 Prove:  $\overline{AE} \cong \overline{CE}$   
 $\overline{DE} \cong \overline{BE}$

S	R
① $\square ABCD$	① Given
② $\overline{AD} \parallel \overline{BC}$	② def of $\square$
③ $\angle 7 \cong \angle 5$ $\angle 4 \cong \angle 2$	③ Alt Int $\angle$ s thm
④ $\overline{AD} \cong \overline{BC}$	④ Opp sides $\square \cong$
⑤ $\triangle ADE \cong \triangle CBE$	⑤ ASA
⑥ $\overline{AE} \cong \overline{CE}$ $\overline{DE} \cong \overline{BE}$	⑥ CPCTC

Theorem 8.6-Diagonals of a parallelogram bisect each other





$$TX = 8$$

$$XV = .5y$$

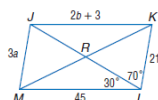
$$y = 16$$

$$3x - 1 = 14$$

$$x = 5$$

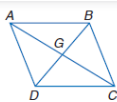
Use  $\square JKLM$  to find each measure or value if  $JK = 2b + 3$  and  $JM = 3a$ .

7.  $m\angle MJK$
8.  $m\angle JML$
9.  $m\angle JKL$
10.  $m\angle KJL$
11.  $a$
12.  $b$



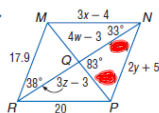
Complete each statement about  $\square ABCD$ . Justify your answer.

16.  $\angle DAB \cong ?$
17.  $\angle ABD \cong ?$
18.  $\overline{AB} \parallel ?$
19.  $\overline{BG} \cong ?$
20.  $\triangle ABD \cong ?$
21.  $\angle ACD \cong ?$



**ALGEBRA** Use  $\square MNPR$  to find each measure or value.

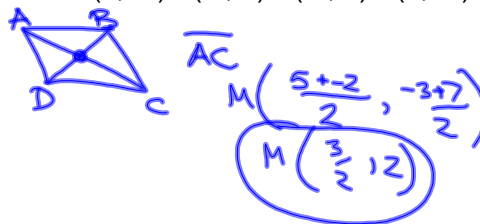
22.  $m\angle MNP$
23.  $m\angle NRP$
24.  $m\angle RNP$
25.  $m\angle RMN$
26.  $m\angle MQN$
27.  $m\angle MQR$
28.  $x$
29.  $y$
30.  $w$
31.  $z$



Find the point where the diagonals intersect.

$\square ABCD$  is a parallelogram.

A(5, -3) B(3, 5) C(-2, 7) D(0, -1)



HW

p. 518-519

3-16, 23-28,

33-36